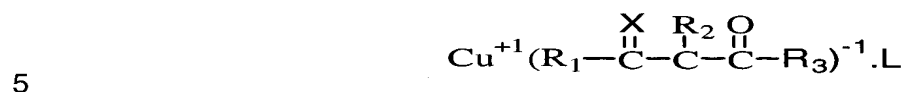
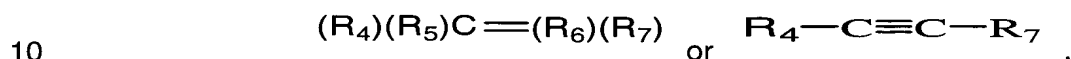


## CLAIMS

1. A monovalent copper(+1)( $\beta$ -diketonate)(L) or monovalent copper(+1)( $\beta$ -ketoiminate)(L) complex represented by the formula:



wherein X represents O or NR<sub>9</sub> wherein R<sub>1</sub> and R<sub>3</sub> are each independently comprised of the group C<sub>1-8</sub> alkyl, C<sub>1-8</sub> fluoroalkyl, aryl, C<sub>1-8</sub> alkoxy, and C<sub>1-8</sub> alkyl ethers and R<sub>2</sub> is H, C<sub>1-8</sub> alkyl, C<sub>1-8</sub> alkoxy, and halogen, R<sub>9</sub> is C<sub>1-8</sub> alkyl, C<sub>1-8</sub> fluoroalkyl, phenyl, alkylphenyl, trialkylsilyl, and L represents a ligand having the structure:



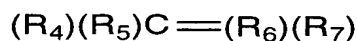
wherein R<sub>4</sub> is comprised of the group C<sub>1-8</sub> alkanol, C<sub>1-8</sub> alkoxyalkanol, C<sub>1-8</sub> unsaturated alkoxyalkanol, trialkylsilanol, C<sub>1-8</sub> alkylamine, phenylamine; R<sub>5</sub>, R<sub>6</sub>, and R<sub>7</sub> are comprised of the group H, C<sub>1-8</sub> alkyl, trialkylsilyl, alkoxy or phenyl.

15 2. The complex of Claim 1 wherein X is O.

3. The complex of Claim 2 wherein R<sub>1</sub> and R<sub>3</sub> are selected from the group consisting of C<sub>1-3</sub> alkyl and C<sub>1-3</sub> fluoroalkyl.

20 4. The complex of Claim 3 wherein R<sub>2</sub> is H.

5. The complex of Claim 4 wherein L is represented by the formula:



25 6. The complex of Claim 5 wherein R<sub>4</sub> is (CH<sub>3</sub>)<sub>2</sub>COH.

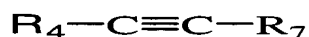
7. The complex of Claim 6 wherein R<sub>5</sub>, R<sub>6</sub>, and R<sub>7</sub> are H.

8. The complex of Claim 7 wherein R<sub>1</sub> and R<sub>3</sub> are CF<sub>3</sub>.

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9. The complex of Claim 2 wherein  $\beta$ -diketonate portion of the compound is derived from a  $\beta$ -diketone selected from the group consisting of 1,1,1,5,5,5-hexafluoro-2,4-pentanedione; 4-(2,2,2-trifluoroethyl)imino-1,1,1,5,5,5-hexafluoro-2-pentanone; 5-(2,2,2-trifluoroethyl)imino-1,1,1,2,2,6,6,6-octafluoro-3-hexanone, and 6-(2,2,2-trifluoroethyl)imino-1,1,1,2,2,3,3,7,7,7-decafluoro-4-heptanone.

10. The complex of Claim 4 wherein L is represented by the formula:



11. The complex of Claim 10 wherein  $R_4$  is  $CH_2OH$ .

12. The complex of Claim 11 wherein  $R_7$  is H.

13. The complex of Claim 12 wherein  $R_1$  and  $R_3$  are  $CF_3$ .

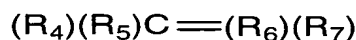
14. The complex of Claim 9 wherein the  $\beta$ -diketonate portion is derived from 1,1,1,5,5,5-hexafluoro-2,4-pentanedione and the ligand L is derived from 2-methyl 3-buten-2-ol.

15. The complex of Claim 1 wherein X is  $NR_9$

16. The complex of Claim 15 wherein  $R_1$  and  $R_3$  are selected from the group consisting of  $C_{1-3}$  alkyl and  $C_{1-3}$  fluoroalkyl and  $R_2$  is H.

17. The complex of Claim 16 wherein  $R_9$  is  $C_{1-3}$  fluoroalkyl.

18. The complex of Claim 17 wherein L is represented by the formula:



19. The complex of Claim 18 wherein  $R_4$  is  $(CH_3)_2COH$  and  $R_5$ ,  $R_6$ , and  $R_7$  are H.

20. In a process for the chemical vapor deposition of copper metal on metallic substrates or electrically conducting portions of a substrate using organometallic copper compounds, the improvement which comprises using the monovalent copper complex of Claim 1 as the organometallic copper compound.

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